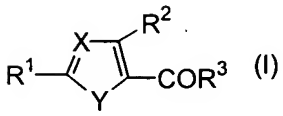
CLAIMS

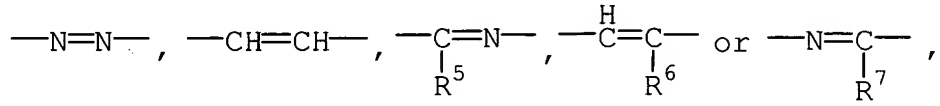
1. A cyclic compound of the formula (I) or a pharmacologically acceptable salt thereof,



(I)

wherein X is =CH−or=N−,

Y is−NH−, $-NR^4-$, −S−, −O−, −CH=N−, −N=CH−,

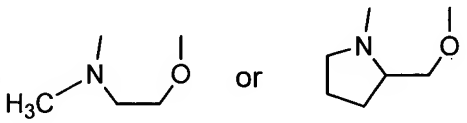


R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group,

R^2 is a lower alkylamino group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group substituted by an aromatic heterocyclic ring containing N atom(s), a lower alkylamino group substituted by a heterocyclic ring which is optionally substituted, or an amino group substituted by an aryl group which is optionally substituted,

R^3 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkyl group which is optionally substituted, a lower alkoxy group which is optionally substituted, a cyclo lower alkoxy group which is optionally substituted, a hydroxy group substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or an amino group which is optionally substituted, and

R^4, R^5, R^6 or R^7 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkoxy group which is optionally substituted, or an amino group which is optionally substituted, and R^4, R^5, R^6 or R^7 may combine with R^3 to form a lactone ring represented by the following formula,

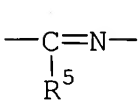
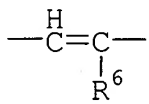
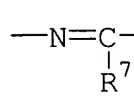
 or

wherein, when X is =N-, Y is -CH=N-, or -N=CH-, R^2 is an amino group mono-substituted by a methyl group substituted by an aryl which is optionally substituted, and R^3 is a lower alkyl which is optionally substituted, an amino group mono-substituted by a lower alkyl group substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, an amino group mono-substituted by a heterocyclic ring containing N atom(s) which is optionally substituted or an amino group mono-substituted by a cyclo lower alkyl group which is optionally substituted, R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group.

2. The compound claimed in claim 1, wherein

X is =N-,

Y is $-NH-$, $-NR^4-$, $-S-$, $-O-$, $-CH=N-$, $-N=CH-$,

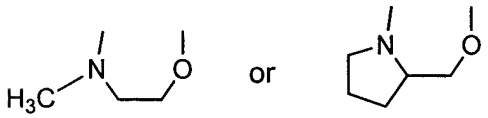
$-N=N-$, $-CH=CH-$,  ,  or  ,

R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group,

R^2 is a lower alkylamino group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group substituted by an aromatic heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkylamino group substituted by a heterocyclic ring which is optionally substituted, or an amino group substituted by an aryl group which is optionally substituted,

R^3 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkyl group which is optionally substituted, a lower alkoxy group which is optionally substituted, a cyclo lower alkoxy group which is optionally substituted, a hydroxy group substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or an amino group which is optionally substituted, and

R^4, R^5, R^6 or R^7 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkoxy group which is optionally substituted or an amino group which is optionally substituted, and R^4, R^5, R^6 or R^7 optionally combines with R^3 to form a lactone ring represented by the following formula,



wherein, when X is =N-, Y is -CH=N-, or -N-CH-, R^2 is an amino group mono-substituted by a methyl group substituted by an aryl which is optionally substituted, and R^3 is a lower alkyl which is optionally substituted, an amino group mono-substituted by a lower alkyl group substituted by a heterocyclic ring containing N atom(s) which is optionally be substituted, or an amino group mono-substituted by a cyclo lower alkyl group which is optionally substituted, R^1 is a lower alkoxy which is optionally substituted,

an amino group which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group.

3. The compound claimed in claim 1, wherein

X is =CH- or =N-,

Y is $-NH-$, $-NR^4-$, $-S-$, or $-O-$,

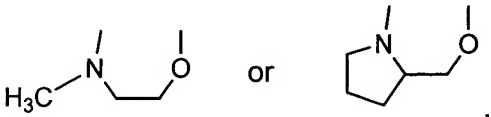
R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group,

R^2 is a lower alkylamino group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group substituted by an aromatic heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkylamino group substituted by a heterocyclic ring which is optionally substituted, or an amino group substituted by an aryl group which may substituted,

R^3 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkyl group which is optionally substituted, a lower alkoxy group which is optionally substituted, a cyclo lower alkoxy group which is optionally substituted, a hydroxy group substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, an amino group which is optionally substituted, or

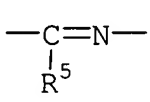
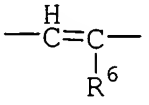
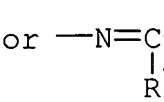
R^4 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkoxy group which is optionally

substituted, or an amino group which is optionally substituted, and R^4 optionally combines with R^3 to form a lactone ring represented by following formula,

 or

4. The compound claimed in claim 1, wherein

X is =N-,

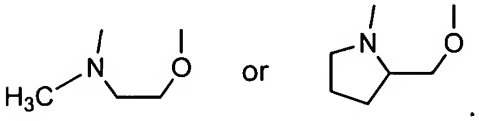
Y is —N=N—, —CH=CH—,  ,  or  ,

R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group,

R^2 is a lower alkylamino group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group substituted by an aromatic heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkylamino group substituted by a heterocyclic ring which is optionally substituted, or an amino group substituted by an aryl group which is optionally substituted,

R^3 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkyl group which is optionally substituted, a lower alkoxy group which is optionally substituted, a cyclo lower alkoxy group which is optionally substituted, a hydroxy group substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, an amino group which is optionally substituted, or

R^5, R^6 or R^7 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkoxy group which is optionally substituted, or an amino group which is optionally substituted, and R^5, R^6 or R^7 optionally combines with R^3 to form a lactone ring represented by the following formula,



5. The compound claimed in claim 1, wherein

X is =N-,

Y is —CH=N- or -N=CH-,

R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group,

R^2 is a lower alkylamino group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group substituted by an aromatic heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkylamino group substituted by a heterocyclic ring which is optionally substituted, or an amino group substituted by an aryl group which is optionally substituted,

R^3 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkyl group which is optionally substituted, a lower alkoxy group which is optionally substituted, a cyclo lower alkoxy group which is optionally substituted, a hydroxy group substituted by a heterocyclic ring

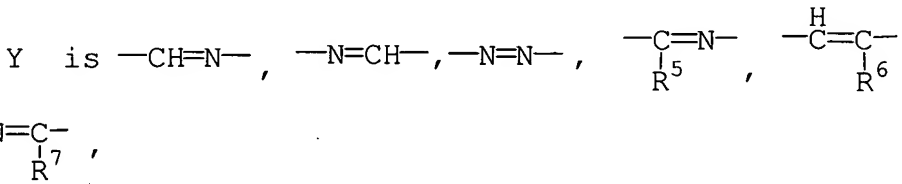
containing N atom(s) which is optionally substituted, an amino group which is optionally substituted,

provided that when R^2 is an amino group mono-substituted by methyl group substituted by an aryl group which is optionally substituted,

R^3 is a lower alkyl group which is optionally substituted, an amino group mono-substituted by a lower alkyl group substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, an amino group mono-substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or an amino group mono-substituted by a cycloalkyl group which is optionally substituted, R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group.

6. The compound claimed in claim 1, wherein

X is =CH-,

Y is 

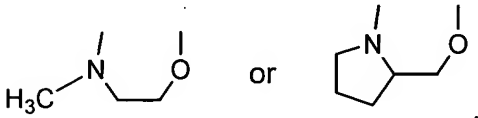
R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group,

R^2 is a lower alkylamino group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group substituted by an aromatic heterocyclic ring containing N atom(s) which is optionally substituted, a lower

alkylamino group substituted by a heterocyclic ring which is optionally substituted, or an amino group substituted by an aryl group which may substituted,

R^3 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkyl group which is optionally substituted, a lower alkoxy group which is optionally substituted, a cyclo lower alkoxy group which is optionally substituted, a hydroxyl group substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, an amino group which is optionally substituted, or

R^5, R^6 or R^7 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkoxy group which is optionally substituted, or an amino group which is optionally substituted, and R^5, R^6 or R^7 may combine with R^3 to form a lactone ring represented by following formula,



7. The compound claimed in claim 1, wherein

X is =CH-,

Y is $-CH=CH-$,

R^1 is a lower alkoxy group which is optionally substituted, an amino group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a hydroxy group which is optionally substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, or cyano group,

R^2 is a lower alkylamino group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group which is optionally substituted by an aryl group which is optionally substituted, a lower alkoxy group substituted by an aromatic heterocyclic ring containing N atom(s) which is optionally substituted, a lower

alkylamino group substituted by a heterocyclic ring which is optionally substituted, or an amino group substituted by an aryl group which is optionally substituted,

R^3 is an aryl group which is optionally substituted, a heterocyclic ring containing N atom(s) which is optionally substituted, a lower alkyl group which is optionally substituted, a lower alkoxy group which is optionally substituted, a cyclo lower alkoxy group which is optionally substituted, a hydroxy group substituted by a heterocyclic ring containing N atom(s) which is optionally substituted, an amino group which is optionally substituted.

8. The compound claimed in any of claims 1-7, wherein

R^1 is

(1) a lower alkoxy group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of a cyclo lower alkyl group, hydroxy group, a lower alkylamino group which is optionally protected, a lower alkoxy group, a hydroxy-substituted lower alkyl group, phenyl group, a lower alkoxyphenyl group, a hydroxy-substituted lower alkylphenyl group, a furyl group, a pyridyl group, a lower alkoxypyridyl group, a hydroxy-substituted lower alkylpyridyl group, a lower alkylpyridyl group, a pyrimidinyl group, a lower alkoxypyrimidinyl group, and a morpholinyl group,

(2) a lower alkylamino group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of hydroxy group, a lower alkoxy group, a lower alkyl group, a pyridyl group, a lower alkylamino group, cyano group, a phenyl group which is optionally substituted by a lower alkoxy group and/or a halogen atom, and a hydroxy-substituted lower alkyl group,

(3) an indanylamino group,

(4) a heterocyclic ring containing N atom(s) which is optionally substituted by one to four, same or different, substituents selected from the group consisting of hydroxyl group, a lower alkyl group, a lower alkoxy group, a hydroxy-substituted lower alkyl group, oxo group, a pyridyl group which is optionally substituted by a hydroxy-substituted lower alkyl group, a pyrimidinyl group which is optionally substituted by a lower alkylamino group, formyl group, mesyl group, a lower alkanoyl group substituted by a hydroxy group which is optionally protected, and carbamoyl group,

(5) a hydroxy group which is optionally substituted by a pyridyl group, or

(6) cyano group,

R^2 is

(1) a lower alkylamino group substituted by an aryl group which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a lower alkoxy group, a halogen atom, an amino group, a lower alkanoylamino group, a formylamino group, hydroxy group, a lower alkoxypyridyl group, a lower alkylamino group, nitro group, a halogeno-substituted lower alkyl group, a lower alkylenedioxy group, cyano group, a lower alkyl group substituted by a hydroxy group which is optionally protected, a lower alkylsulfonyl group, and a lower alkylsulfinyl group,

(2) a lower alkoxy group substituted by one to four, same or different, substituents selected from the group consisting of a lower alkoxy group and a halogen atom,

(3) a lower alkoxy group substituted by a pyridyl group,

(4) a lower alkylamino group substituted by an indolyl group, a pyrimidinyl group, a benzofuranyl group, a dihydrobenzofuranyl group, a lower alkylpyrimidinyl group, a dihydrobenzoxazolyl or a dihydrobenzimidazolyl group, or

(5) an indanylamino group,

R^3 is

(1) an aryl group which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a lower alkoxy group and an lower alkylamino group, or an aryl group which is optionally substituted by one or two lower alkylenedioxy groups,

(2) a heterocyclic ring containing N atom(s) which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a lower alkyl group, hydroxy group, an amino group, chlorosulfinyloxy group and a piperidinyloxysulfinyloxy group,

(3) a lower alkyl group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of a morpholinyl group and a di-lower alkoxyphosphoryl group,

(4) a lower alkoxy group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of a pyridyl group, a lower alkoxypyridyl group, a pyrimidinyl group, a lower alkylamino group, a pyrazinyl group, a lower alkoxy group which is optionally substituted by phenyl group, a pyrimidinyl-substituted oxy group, a pyridyl-substituted oxy group, a pyrimidinyl-substituted lower alkoxy group, a morpholinyl group, a lower alkylmorpholinyl group, a N-lower alkyl-N-pyrimidinylamino group, a lower alkyldioxolanyl group, a lower alkoxy-substituted lower alkoxy group, a pyridylcarbonylamino group, hydroxy group, and a lower alkylpiperidyl group,

(5) a cyclo lower alkoxy group which is optionally substituted by hydroxy group,

(6) a piperidyl-substituted hydroxy group which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a pyrimidinyl group, a lower alkyl group and a cyano-substituted lower alkyl group, or

(7) an amino group which is optionally substituted by one or two, same or different, substituents selected from the group consisting of

(i) a lower alkoxy group which is optionally substituted by a lower alkoxy group,

(ii) a lower alkyl group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of cyano group, hydroxy group, a lower alkoxy group, a phenyl group which is optionally substituted by a lower alkoxy group and/or a halogen atom, carbamoyl group, a lower alkylamino group, a pyridyl group, a lower alkyl pyridyl group, a lower alkoxy pyridyl group, a pyrimidinyl group, a lower alkoxy pyrimidinyl group, a morpholinyl group, a lower alkyl morpholinyl group, a hydroxy-substituted lower alkyl morpholinyl group, a cyano- substituted lower alkylmorpholinyl group, a hydroxy-substituted piperidyl group, an oxo-substituted piperazinyl group, a lower alkyl piperazinyl group, a lower alkylsulfonylpiperazinyl group, a pyrrolidinyl group, a lower alkylpyrrolidinyl group, a lower alkylpyrazinyl group, a tetrahydrofuranyl group, a lower alkoxypyridylamino group, and a pyrimidinylamino group,

(iii) a phenyl group which is optionally substituted by hydroxy group or a lower alkoxy group,

(iv) a pyridyl group which is optionally substituted by a lower alkyl group,

(v) a pyrazolyl group which is optionally substituted by a lower alkyl group,

(vi) an isoxazolyl group which is optionally substituted by a lower alkyl group,

(vii) a morpholinyl group,

(viii) a piperidyl group which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a lower alkoxycarbonyl group, a lower alkylsulfonyl group, a lower alkyl group, a cyano-substituted lower alkyl group, a

hydroxy-substituted lower alkanoyl group, formyl group, a lower alkoxy-substituted lower alkanoyl group, and a lower alkylamino-substituted lower alkanoyl group,

(ix) a cyclo lower alkyl group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of a hydroxy group which is optionally protected, a lower alkoxy group, and a pyrimidinyl-substituted oxy group, and

(x) a pyrimidinylamino group which is optionally substituted by a lower alkyl group or a lower alkoxycarbonyl group,

R^4, R^5, R^6 or R^7 is

(1) a phenyl group which is optionally substituted by a lower alkoxy group,

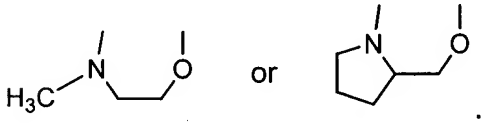
(2) a heterocyclic ring containing N atom(s) which is optionally substituted by hydroxy group, a lower alkyl group or a hydroxy-substituted lower alkyl group,

(3) a lower alkoxy group, or

(4) an amino group which is optionally substituted by a lower alkyl group substituted by a heterocyclic ring containing N atom(s), a hydroxy-substituted cyclo lower alkyl group, or a lower alkyl group, or

R^4, R^5, R^6 or R^7

(5) optionally combines with R^3 to form a lactone ring as shown in following formula;



9. The compound claimed in claim 3, wherein

X is =N-,

Y is -S-,

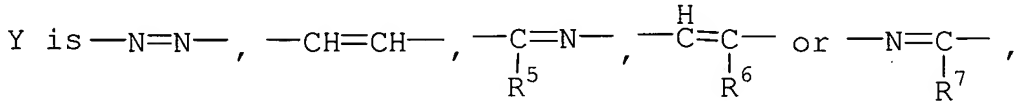
R^1 is a pyrrolidinyl group which is optionally substituted by a hydroxy-substituted lower alkyl,

R^2 is a lower alkylamino group which is optionally substituted by a phenyl group which is optionally substituted by one or two, same or different, substituents selected from a lower alkoxy group and a halogen atom, and

R^3 is an amino group which is optionally substituted by a lower alkoxy group or a pyrimidinyl-substituted lower alkyl group.

10. The compound claimed in claim 4, wherein

X is =N-,

Y is 

R^1 is (1) a lower alkoxy group which is optionally substituted by a lower alkylamino group or a pyridyl group, (2) an amino group which is optionally substituted by hydroxy group or a lower alkoxy group, (3) a heterocyclic ring containing N atom(s) which is optionally substituted by hydroxy group, a lower alkoxy group, a lower alkyl group, a hydroxy-substituted lower alkyl group, oxo group, a pyridyl group which is optionally substituted by a hydroxy-substituted lower alkyl group, or a pyrimidinyl group which is optionally substituted by a lower alkylamino group, or (4) a hydroxy group which is optionally substituted by a pyridyl group,

R^2 is a lower alkylamino group which is optionally substituted by a phenyl group which is optionally substituted by a lower alkoxy group and/or a halogen atom,

R^3 is (1) a lower alkoxy group which is optionally substituted by a phenyl-substituted lower alkoxy group, or (2) an amino group which is optionally substituted by (i) a lower alkyl group which is optionally substituted by the same or different subsituents selected from a group of consisting of a lower alkoxy group, a pyridyl group, a lower alkylpyridyl group, a pyrimidinyl group, a lower alkoxypyrimidinyl group, a morpholinyl group, and a lower alkylpyrazinyl group, (ii) a pyridyl group which is

optionally substituted by a lower alkyl group, or (iii) a cyclo lower alkyl group which is optionally substituted by hydroxy group,

R^5, R^6 or R^7 is

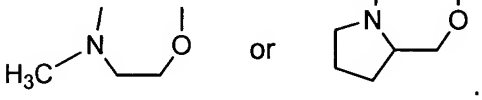
(1) a phenyl group which is optionally substituted by a lower alkoxy group,

(2) a heterocyclic ring containing N atom(s) which is optionally substituted by a hydroxy group, a lower alkyl group or a hydroxy-substituted lower alkyl group,

(3) a lower alkoxy group,

(4) an amino group which is optionally substituted by a lower alkyl group substituted by a heterocyclic ring containing N atom(s), a hydroxy-substituted cyclo lower alkyl group, or a lower alkyl group, or

(5) optionally combines with R^3 to form a lactone ring as shown in following formula,



11. The compound claimed in claim 5, wherein

X is =N-,

Y is -CH=N- or -N=CH-,

R^1 is

(1) a lower alkoxy group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of a cyclo lower alkyl group, hydroxy group, a lower alkylamino group which is optionally protected, a lower alkylamino group, a lower alkoxy group, a hydroxy-substituted lower alkyl group, phenyl group, a lower alkoxyphenyl group, a hydroxy-substituted lower alkylphenyl group, a furyl group, a pyridyl group, a lower alkoxypyridyl group, a hydroxy-substituted lower

alkylpyridyl group, a lower alkylpyridyl group, a pyrimidinyl group, a lower alkoxypyrimidinyl group, and a morpholinyl group,

(2) a lower alkylamino group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of hydroxy group, a lower alkoxy group, a lower alkyl group, a pyridyl group, a lower alkylamino group, cyano group, a phenyl group which is optionally substituted by a lower alkoxy group and/or a halogen atom, and a hydroxy-substituted lower alkyl group,

(3) an indanylamino group,

(4) a heterocyclic ring containing N atom(s) which is optionally substituted by one to four, same or different, substituents selected from the group consisting of hydroxy group, a lower alkyl group, a lower alkoxy group, a hydroxy-substituted lower alkyl group, oxo group, a pyridyl group which is optionally substituted by a hydroxy-substituted lower alkyl group, a pyrimidinyl group which is optionally substituted by a lower alkylamino group, formyl group, mesyl group, a lower alkanoyl group substituted by a hydroxy group which is optionally protected, and carbamoyl group,

(5) cyano group, or

(6) a hydroxyl group which is optionally substituted by a pyridyl group,

R^2 is

(1) a lower alkylamino group substituted by an aryl group which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a lower alkoxy group, a halogen atom, an amino group, a lower alkanoylamino group, a formylamino group, hydroxy group, a lower alkoxy pyridyl group, a lower alkylamino group, nitro group, a halogen-substituted lower alkyl group, a lower alkylenedioxy group, cyano group, a lower alkyl group substituted by a hydroxyl group which is optionally protected, a lower alkylsulfonyl group, and a lower alkylsulfinyl group,

(2) a lower alkylamino group substituted by an indolyl group, a pyrimidinyl group, a benzofuranyl group, a dihydrobenzofuranyl group, a lower alkylpyrimidinyl group, a dihydrobenzoxazolyl group or a dihydrobenzimidazolyl group, or

(3) an indanylamino group,

(4) a lower alkoxy group substituted by an aryl group which is optionally substituted by one to four, same or different, substituents selected from a lower alkoxy group and a halogen atom, or

(5) a lower alkoxy group substituted by a pyridyl group,

R^3 is

(1) an aryl group which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a lower alkoxy group and a lower alkylamino group, or an aryl group which is optionally substituted by one or two lower alkylenedioxy group,

(2) a heterocyclic ring containing N atom(s) which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a lower alkyl group, hydroxy group, an amino group, chlorosulfinyloxy group and a piperidyloxysulfinyloxy group,

(3) a lower alkyl group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of a morpholinyl group and a di-lower alkoxyphosphoryl group,

(4) a lower alkoxy group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of a pyridyl group, a lower alkoxypyridyl group, a pyrimidinyl group, a lower alkylamino group, a pyrazinyl group, a lower alkoxy group which is optionally substituted by phenyl group, a pyrimidinyl-substituted oxy group, a pyridyl-substituted oxy group, a pyrimidinyl-substituted lower

alkoxy group, a morpholinyl group, a lower alkylmorpholinyl group, a N-lower alkyl-N-pyrimidinylamino group, a lower alkyl dioxolanyl group, a lower alkoxy-substituted lower alkoxy group, a pyridylcarbonylamino group, hydroxy group, and a lower alkylpiperidyl group,

(5) a cyclo lower alkoxy group which is optionally substituted by hydroxyl group,

(6) a piperidyl-substituted hydroxy group which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a pyrimidinyl group, a lower alkyl group and a cyano-substituted lower alkyl group, or

(7) an amino group which is optionally substituted by one or two, same or different, substituents selected from the group consisting of

(i) a lower alkoxy group which is optionally substituted by a lower alkoxy group,

(ii) a lower alkyl group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of cyano group, hydroxy group, a lower alkoxy group, a phenyl group which is optionally substituted by a lower alkoxy group and/or a halogen atom, carbamoyl group, a lower alkylamino group, a pyridyl group, a lower alkylpyridyl group, a lower alkoxypyridyl group, pyrimidinyl group, a lower alkoxypyrimidinyl group, a morpholinyl group, a lower alkyl morpholinyl group, a hydroxy-substituted lower alkyl morpholinyl group, a cyano-substituted lower alkyl morpholinyl group, a hydroxy-substituted piperidyl group, an oxo-substituted piperazinyl group, a lower alkyl piperazinyl group, a lower alkylsulfonylpiperazinyl group, a pyrrolidinyl group, a lower alkyl pyrrolidinyl group, a lower alkyl pyrazinyl group, a tetrahydrofuranyl group, a lower alkoxy pyridylamino group, and a pyrimidinylamino group,

(iii) a phenyl group which is optionally substituted by hydroxy group or a lower alkoxy group,

(iv) a pyridyl group which is optionally substituted by a lower alkyl group,

(v) a pyrazolyl group which is optionally substituted by a lower alkyl group,

(vi) an isoxazolyl group which is optionally substituted by a lower alkyl group,

(vii) a morpholinyl group,

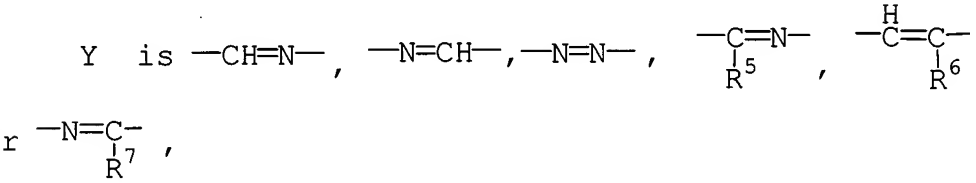
(viii) a piperidyl group which is optionally substituted by one to four, same or different, substituents selected from the group consisting of a lower alkoxycarbonyl group, a lower alkylsulfonyl group, a lower alkyl group, a cyano-substituted lower alkyl group, a hydroxy-substituted lower alkanoyl group, formyl group, a lower alkoxy-substituted lower alkanoyl group, and a lower alkylamino-substituted lower alkanoyl group,

(ix) a cyclo lower alkyl group which is optionally substituted by one to three, same or different, substituents selected from the group consisting of a hydroxy group which is optionally protected, a lower alkoxy group, and a pyrimidinyl-substituted oxy group, and

(x) a pyrimidinylamino group which is optionally substituted by a lower alkyl group or a lower alkoxycarbonyl group.

12. The compound claimed in claim 6, wherein

X is =CH-,

Y is 

R^1 is a pyrrolidyl group which is optionally substituted by a hydroxy-substituted lower alkyl group,

R^2 is a lower alkylamino group which is optionally substituted by a phenyl group which is optionally substituted by one or two substituents selected from a lower alkoxy group and a halogen atom, and

R^3 is (1) a lower alkoxy group, (2) a lower alkyl group which is optionally substituted by a pyrimidinyl group or a morpholinyl group, or (3) an amino group which is optionally substituted by a cyclo lower alkyl group which is optionally substituted by hydroxy group.

13. The compound claimed in claim 7, wherein

X is =CH-,

Y is $-CH=CH-$,

R^1 is a pyrrolidinyl group which is optionally substituted by a pyridyl-substituted lower alkoxy group or a hydroxy-substituted lower alkyl group,

R^2 is a lower alkylamino group which is optionally substituted by an phenyl group which is optionally substituted by one or two substituents selected from a lower alkoxy group and a halogen atom, and

R^3 is (1) a lower alkoxy group, or (2) a lower alkyl group which is optionally substituted by a pyrimidinyl group or a morpholinyl group.

14. The compound claimed in any one of claims 1-13, wherein

an aryl group on R^1, R^2, R^3, R^4, R^5, R^6 or R^7 is a monocyclic, bicyclic or tricyclic 6-14 membered aryl group which may be partially saturated, or a heterocyclic ring containing N atom(s) on R^1, R^3, R^4, R^5, R^6 or R^7 is a monocyclic or bicyclic 5 to 14 membered heterocyclic containing N atom(s).

15. The compound claimed in claim 14, wherein the monocyclic, bicyclic or tricyclic 6-14 membered aryl group which may be partially saturated on R^1, R^2, R^3, R^4, R^5, R^6 or R^7 is phenyl, naphthyl, indenyl or indanyl.

16. The compound claimed in claim 14, wherein

the monocyclic or bicyclic 5 to 14 membered heterocyclic ring containing N atom(s) on R^1, R^3, R^4, R^5, R^6 or R^7 is pyridyl, pyrimidinyl, imidazolyl, piperidyl, pyrazolyl,

morpholinyl, piperazinyl, pyrrolidinyl, dihydroisoindolyl, tetrahydroimidazo[1,2-a]pyrazyl, tetrahydroisoquinolyl, dihydro-5H-pyrrolo[3,4-b]pyridyl, naphthylidinyl, pyrazo[3,4-d]pyridyl, tetrahydropyridyl, oxazolo[4,5-c]pyridyl, octahydropyrido[3,4-d]pyrimidinyl, thiazolo[4,5-d]pyridyl, imidazo[4,5-d]pyridyl, perhydrodiazepinyl, perhydropiperadino[3,4-c]piperadinyl, tetrahydroisoxazolo[4,5-c]pyridyl, hexahydropyrazolo[4,3-c]pyridyl, dihydropyridyl, tetrahydroxazolo[5,4-c]pyridyl, hexahydropyrido[3,4-d]pyrimidinyl, octahydropyrido[4,3-d]pyrimidinyl, tetrahydrothiazolo[5,4-c]pyridyl, imidazo[4,5-b]pyridyl, homopiperazinyl, perhydropyrazino[1,2-a]pyrazinyl, tetrahydropyrido[4,3-d]pyrimidinyl, tetrahydrothieno[3,2-c]pyridyl, or tetrahydronaphthylidinyl.

17. A pharmaceutical composition containing a compound claimed in any one of claims 1-16 or its pharmacologically acceptable salt as an active ingredient.

18. A method for treating electile dysfunction, comprising administering to a patient in need thereof an effective amount of a compound claimed in any one of claims 1-16 or its pharmacologically acceptable salt.

19. A method for treating pulmonary hypertension, comprising administering to a patient in need thereof an effective amount of a compound claimed in any one of claims 1-16 or its pharmacologically acceptable salt.

20. A method for treating diabetic gastroparesis comprising administering to a patient in need thereof an effective amount of a compound claimed in any one of claims 1-16 or its pharmacologically acceptable salt.

21. Use of a compound claimed in any one of claims 1-16 or its pharmacologically acceptable salt in the preparation of a pharmaceutical preparation for treating erectile dysfunction.

22. Use of a compound claimed in any one of claims 1-16 or its pharmacologically acceptable salt in the preparation of a pharmaceutical preparation for treating pulmonary hypertension.

23. Use of a compound claimed in any one of claims 1-16 or its pharmacologically acceptable salt for treating diabetic gastroparesis.